



Montana Department of Transportation
PO Box 201001
Helena, MT 59620-1001

MEMORANDUM

To: See Distribution
From: Kevin Christensen, P.E.
Construction Engineer
Date: October 7, 2008
Subject: Supplemental Specification Revision: 714.05, Reflective Glass Beads

The Construction Administration Services Bureau is proposing revisions to Standard Specification 714.05, Reflective Glass Beads, following the Standard Specification Revision Process outlined in the Construction Engineer's Memorandum dated May 2008. The following information is provided.

1. Standard Specification 714.05, Reflective Glass Beads, will be modified.
2. The Proposed Draft of the change is attached along with this memorandum.
3. Revisions to the Standard Specifications are needed to address changes in glass beads.
4. Those impacted by the change include:
Construction, Contractors, EPM's
5. The following individuals were consulted and/or involved in developing the proposed revisions:
CAS Bureau, CES Bureau, MCA

*It is requested that written comments on **the proposed revisions only**, be returned to mdtspecifications@mt.gov no later than October 31, 2008.*

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714.05 REFLECTIVE GLASS BEADS

- A. General.** Provide glass beads for reflectorizing traffic pavement markings that are spherical, transparent, have a smooth, lustrous surface and meet the pavement marking manufacturer's recommendations. Ensure the delivered beads are free from extraneous material and bead clumps easily break up while handling and distributing onto the stripe.
- B. Imperfections.** Ensure the glass beads do not contain more than 25 percent irregularly shaped particles when tested under ASTM D 1155.
- C. Color.** Ensure the glass beads do not impart a noticeable daytime hue to white pavement markings.
- D. Chemical Stability.** Ensure the beads can withstand refluxing in distilled water in a Soxhlet extractor for 90 hours without noticeable dulling of the surface luster and not more than 2.5 percent loss in weight.
- E. Gradation.** Meet Table 714-2 gradations, [Montana Type 1 or Montana Type 2](#), tested using ASTM D-1214.

**TABLE 714-2
REFLECTIVE GLASS BEAD GRADATION**

| SIEVE NUMBER | PERCENT PASSING | |
|-------------------------------|-----------------|--------------------------------|
| | MONTANA TYPE 1 | MONTANA TYPE 2 |
| 20 (0.850 mm) | 100 | 90 - 97 |
| 30 (0.600 mm) | 75-95 | 50-75 |
| 40 (0.425 mm) | ----- | 15 - 45 |
| 50 (0.300 mm) | 15-35 | 0 - 15 |
| 80 (0.180 mm) | ----- | 0 - 5 |
| 100 (0.150 mm) | 0 - 5 | ----- |

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- F. Packaging and Marking.** Package glass beads in moisture-proof containers marked to identify the contents, manufacturer, lot number, batch number and net weight.
- G. Samples.** Furnish a sample of the beads upon request. The Department will furnish the containers.